

WHAT IS CLAIMED IS:

1           1. A telecommunications system having a protocol architecture over an interface  
2 between nodes of the telecommunications system, the protocol architecture including  
3 Internet Protocol as a protocol above a link layer protocol, wherein the interface is one  
4 of: (1) an interface between a core network and a radio access network which carries  
5 circuit switched connections; (2) an interface between a radio network controller (RNC)  
6 and a base station; and (3) an interface between two radio network controllers (RNCs).

1           2. The system of claim 1, the Internet Protocol is immediately above the link  
2 layer protocol in the transport network layer.

1           3. The system of claim 1, wherein the interface carries a circuit switched  
2 connection, and wherein a protocol stack of the protocol architecture in the transport  
3 network layer comprises:

4           the link layer protocol;

5           the Internet Protocol on top of the link layer protocol;

6           UDP Protocol on top of the Internet Protocol.

1           4. The system of claim 3, wherein the link layer protocol is Ethernet protocol.

1           5. The system of claim 4, wherein in the Internet Protocol a sequence number is  
2 carried in one of an IP option field and a Ipv6 extension header, the sequence number  
3 being used for rearranging incoming IP datagrams.

1           6. The system of claim 3, wherein the protocol stack of the protocol architecture  
2 further comprises, in a radio network layer, a frame handling protocol on top of the  
3 UDP Protocol.

1           7. The system of claim 6, wherein the frame handling protocol rearranges in-  
2 coming frames over the interface which carries a circuit switched connection.

1           8. The system of claim 7, wherein the frame handling protocol includes a  
2 sequence number field used for rearranging incoming frames.

1           9. The system of claim 1, wherein the protocol stack of the protocol architecture  
2 in the transport network layer comprises:

3           the link layer protocol;

4           the Internet Protocol on top of the link layer protocol;

5           UDP Protocol on top of the Internet Protocol; and

6           XTP Protocol on top of the UDP Protocol.

1           10. The system of claim 9, wherein the link layer protocol is Ethernet protocol.

1           11. The system of claim 9, wherein each XTP packet has a connection identifier  
2 and a sequence number.

1           12. The system of claim 9, wherein plural user plane data frames are  
2 multiplexed in one IP datagram.

1           13. The system of claim 1, wherein the protocol stack of the protocol  
2 architecture in the transport network layer comprises:

3           the link layer protocol;

4           the Internet Protocol on top of the link layer protocol;

5           UDP Protocol on top of the Internet Protocol; and

6           UAL2 Protocol on top of the UDP Protocol, wherein the UAL2 protocol each  
7 UAL2-PDU carries an integer number of AAL2 packets.

1           14. The system of claim 1, wherein the protocol stack of the protocol  
2 architecture in the transport network layer comprises:

3           the link layer protocol;

4           the Internet Protocol on top of the link layer protocol;

5           UDP Protocol on top of the Internet Protocol; and

6           RTP Protocol on top of the UDP Protocol.

1           15. The system of claim 14, wherein the interface is between a radio access  
2 network and a core network, and wherein in the RTP Protocol one synchronization  
3 source (SSRC) identifier is allocated to each circuit switched connection between the  
4 node in the radio access network and the node in the core network.

1           16. The system of claim 14, wherein the RTP Protocol compresses plural RTP  
2 packets in an IP datagram.

1           17. The system of claim 1, wherein the interface carries a packet switched  
2 connection, and wherein a protocol stack of the protocol architecture in the transport  
3 network layer comprises:

4           the link layer protocol;

5           the Internet Protocol on top of the link layer protocol;

6           UDP Protocol on top of the Internet Protocol; and

7           XTP Protocol on top of the UDP Protocol.